A Review of the Genus *Mastigoceras* with Remarks on its Systematic Position

(Collembola: Entomobryidae)

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The genus *Mastigoceras* was erected by Handschin (1924) for the Brazilian species *Mastigoceras camponoti*. The description was based on two specimens. Cassagnau (1963) studied three Brazilian specimens and added various details to the original description. While examining the collections of the Illinois Natural History Survey I found an additional 30 specimens and it is my intent to take advantage of this find and redescribe the species in the light of characters recently introduced in collembolan taxonomy. Remarks will also be made on the systematic position of *Mastigoceras* in relation to the other members of the tribe Orchesellini. *Mastigoceras* has so far remained monotypic and Southern Brazilian in distribution.

I wish to thank Dr. C. Baroni Urbani and the Naturhistorisches Museum, Basel, Switzerland, for the loan of the two syntypes of *Mastigoceras camponoti*. Thanks are also due to Dr. R. MacLeod for the opportunity to use the facilities of the Center for Electron Microscopy, University of Illinois.

Mastigoceras Handschin

Medium sized (up to 2.4 mm) members of the tribe Orchesellini (but see later under the discussion on the systematic position of this taxon). Antennae five segmented (Fig. 3), very long, up to three times longer than head and body combined. Eight eyes on each side of head. Dorsal head and body macrochaetotaxy reduced (Fig. 1). Head and body covered with strongly fusiform slightly serrated scales which are absent from all other parts of animal. Abd. 4 dorsally not over 1.5 times longer than Abd. 3. Manubial organ and dental spines absent. Mucro with two teeth and a basal spine.

Mastigoceras camponoti Handschin

Mastigoceras camponoti Handschin 1924:22. Cassagnau 1963:128. Salmon 1964: 484.

Habitus as in figures 2 & 3. Length excluding antennae and furcula up to 2.4 mm. Body background color light yellow. Distribution of purple pigment as in figures 2 & 3 (see also Cassagnau 1963: 129, Fig. 1a,c). Pigmentation is somewhat variable but at least lateral bands and limits of body segments are always deeply pigmented. Bands of pigment on legs very conspicuous, always present. Head and body covered with slightly serrated, strongly fusiform scales (Fig. 9) which are absent from antennae, legs, collophore, and furcula.

Antennae five segmented due to subdivision of first segment (Ant. 1), which is very short (Fig. 3). Ant. 2 robust, bearing several macrochaetae. Ants. 3-5 conspicuously annulated and unusually long, whip like (hence name of genus).

Eight eyes on each side of head (Fig. 8), G & H small but well developed. Labral chaetotaxy following formula 5,5,4,; all setae smooth. Apex of labrum without spine like or cone like projections. Labial chaetotaxy as in figure 5. Differentiated seta of the outer labial papilla small, far from reaching apex of its papilla (Fig. 7). Maxillary palp (Fig. 6) with apical and subapical seta. Dorsal head macrochaetotaxy as in Fig. 1. Venter of head with numerous long ciliated setae. Collarette reduced.

Tibiotarsi devoid of smooth setae with the exception of opposite seta to tenent hair present on metathoracic legs. Claw structure as in Fig. 4. Unguis always quadridentate. Unguiculus with very small outer tooth. Tenent hair long, apically strongly clavate. Abd. 4 dorsally not over 1.5 times longer than Abd. 3. Dorsal body macrochaetotaxy as in Fig. 1.

Manubrium dorsally with a lasiotrichium placed on the basal medial portion of the segment and with numerous short and long slightly or conspicuously ciliated setae. No smooth setae found upon manubrium but a pair of these present on proximal dorsal portion of dentes. Dental spines absent. Mucro with two teeth and basal spine.

Material Examined and Repository : 1) Brazil, Minas Gerais, Sul de Minas, in nests of *Camponotus rufipes,* April 29, 1922. 2 syntypes. 2) Brazil, 10-8-27, 22 specimens (no other data). 3) Sao Paolo, 7 specimens (no other data). 4) Pava, 1 specimen (no other data).

Naturhistorisches Museum, Basel, Switzerland, has the specimens from locality no. 1 and two specimens from locality no. 2. Other specimens from localities 2, 3 & 4 are in the Illinois Natural History Survey.

This genus being monotypic, the generic diagnosis suffices to separate the species from any other Collembola. The length of the antennae, the head and body macrochaetotaxy, the distribution of scales, and the reduction of the collarette (a tuft of macrochaetae on the anterior margin of the mesothorax) are all characteristics peculiar to this genus.

Handschin's original description of *Mastigoceras camponoti* ascribes to this species four segmented antennae. Cassagnau (1963) showed the antennae to be five segmented.

The statement by Salmon (1964: 132) that Gisin (1960) considered this genus as a synonym of *Heteromurus* Wankel is a mistake. Gisin's position concerned *Typhlopodura* Absolon, erected for a European cave species with long antennae.

The Systematic Position of Mastigoceras

As stated earlier, *Mastigoceras* has been considered to belong in

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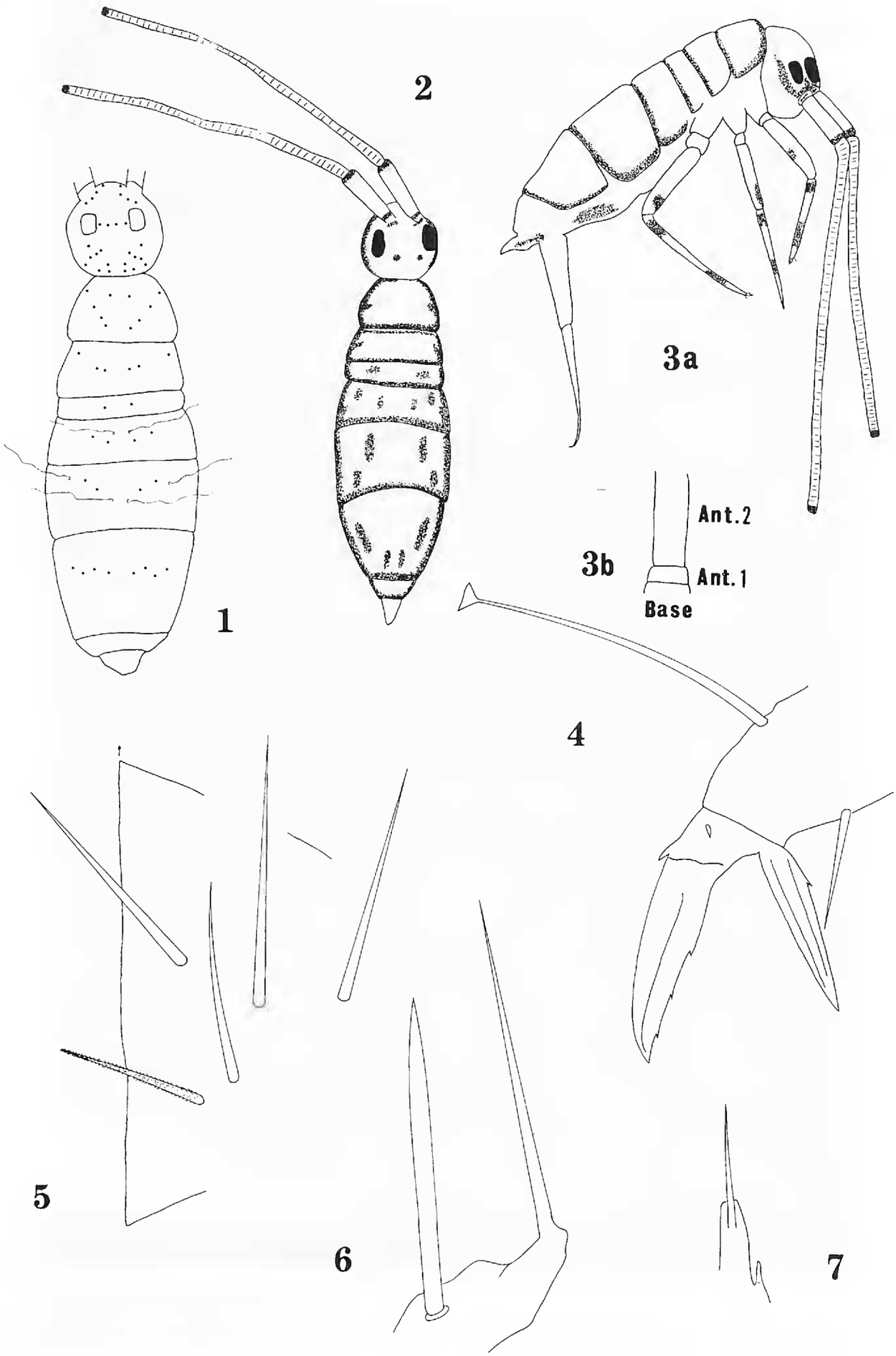
Figs. 1-7, *Mastigoceras camponoti.* Fig. 1, Distribution of head and body macrochaetae (each dot represents a seta) and lasiotrichia. Only the lasiotrichia figured were found but more are probably present. Fig. 2, Dorsal habitus and pigmentation. Fig. 3a, Lateral habitus and pigmentation. Fig. 3b, First antennal segment indicating subdivision into Ants. 1 & 2. Fig. 4, Claw complex of metathoracic leg. Fig. 5, Chaetotaxy of base of labium. Fig. 6, Maxillary palp. Fig. 7, Outer labial papilla and its differentiated seta.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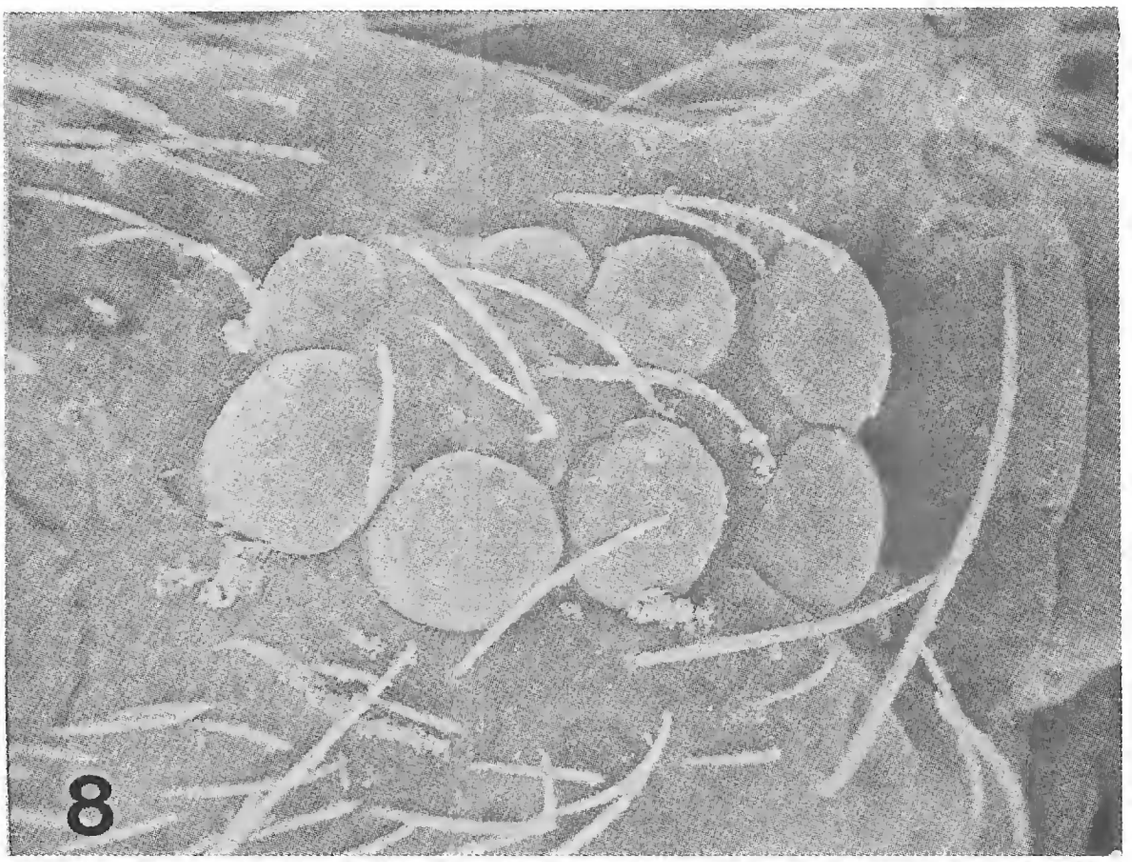

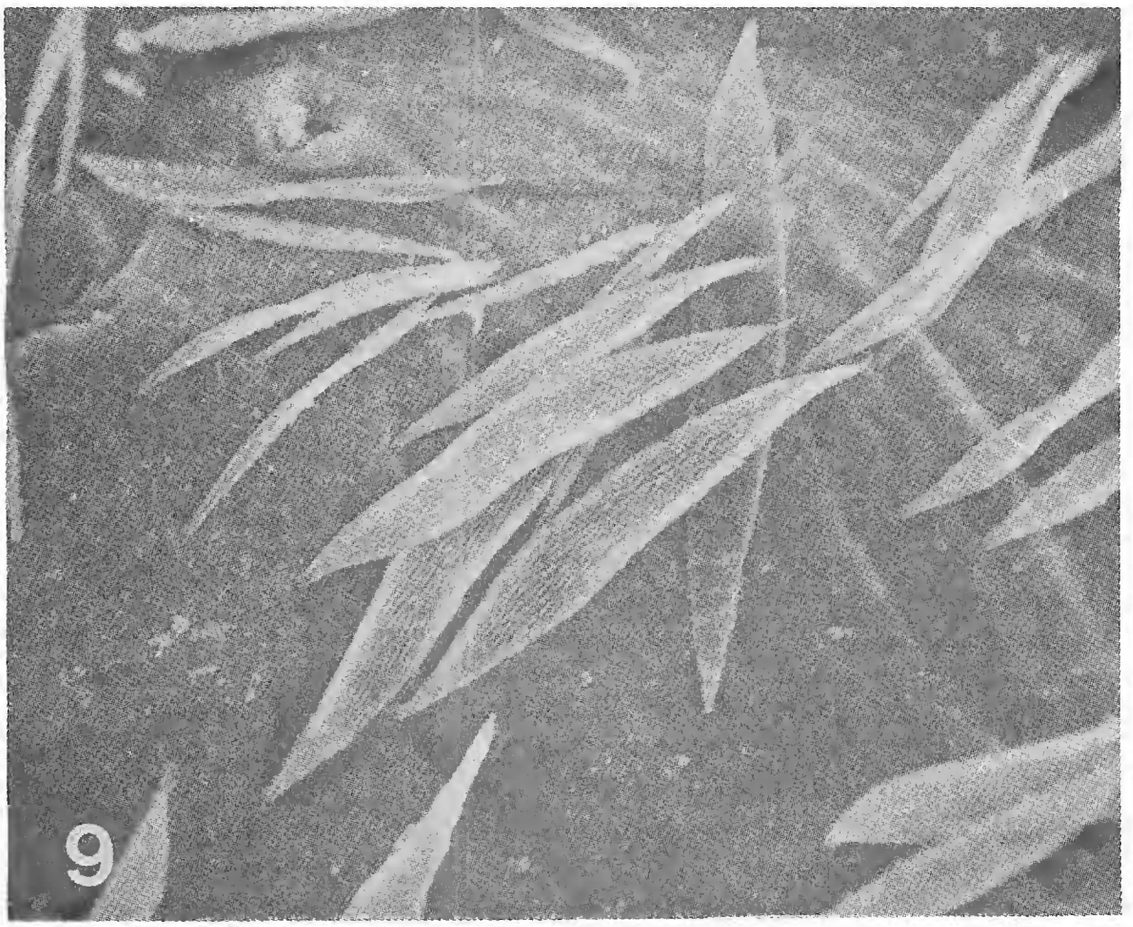

Figs. 8-9, *Mastigoceras camponoti.* Fig. 8, Scanning electron micrograph of right eye patch. 700x. Fig. 9, SEM of dorsal metathoracic scales, 1,000x.

the tribe Orchesellini (e.g. Womersley 1938, Salmon 1951). I am presently revising this tribe and it has become evident that *Mastigoceras* is not a close relative of any other genus in this tribe.

All orcheselline species which I have studied to date share a fundamental pattern of head macrochaetotaxy. The most conspicuous feature of this pattern is a line of setae extending from the mid line of the head to eyes G & H (see for example the figures of head chaetotaxy in Mari Mutt 1977a,b). Such a line of setae is absent in *Mastigoceras.*

Other members of this tribe possess a tuft of many macrochaetae on the anterior margin of the mesothorax (the collarette). This tuft is reduced to 9-10 setae in *Mastigoceras.*

Besides head macrochaetotaxy and the reduction of the collarette, *Mastigoceras* has as unique features its reduced body macrochaetotaxy, absence of scales on the furcula, and the morphology of the antennae.

Stach (1960) restricted the tribe Orchesellini to include only the type genus *Orchesella* and remarked that additional tribes should be erected for groups of other genera in the tribe. It is quite apparent to me that a new tribe should be erected for *Mastigoceras*. I hesitate, however, to establish such a taxon in this paper because it is unclear at this time how many tribes will be erected for the genera of the old tribe Orchesellini. Suffice it to note here that *Mastigoceras* is not a close relative of any other orcheselline genus but belongs in a group by itself.

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